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ROYAL ONTARIO MUSEUM OF ZOOLOGY

BULLETIN No. 6

WITHDRAWN FROM VICTORIA
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TORONTO, JANUARY, 1936.

REUBEN WELLS LEONARD BEQUEST

Through a bequest of the late Reuben Wells Leonard of St. Catharines, the Museum of Zoology has been enabled to add several large mammals to those on exhibition in the galleries.

The preparation of the larger mammals for exhibition, according to modern standards, demands a rather specialized process of prepara-

SOME LARGE MAMMALS MOUNTED UNDER THE REUBEN WELLS LEONARD BEQUEST, WAPITI, ADULT MALE LION, MOOSE AND IMMATURE AND ADULT FEMALE LION.

tion in which sculpture in an applied form is involved. Under the Leonard bequest, Mr. Knud Nielsen, a sculptor-taxidermist, skilled in modern museum methods, has been engaged for this work. A few of the animals recently placed on view are shown in the accompanying illustration. Among the Canadian animals mounted out of this fund are moose, elk (wapiti), bison, polar bear, black bear, cinnamon bear, glacier bear, Kermode's bear and a pair each of Bighorn and White mountain sheep. The exotic species include an adult male, immature male and female lions, tiger, leopard, snow leopard, cheetah, panda and takin.

PANDA AND TAKIN, RARE ANIMALS ADDED TO MUSEUM'S EXHIBITS

The Panda and Takin, recently placed on exhibition in our galleries, are two of the rarest large animals found in museum collections. These specimens were obtained from Dr. Leslie Kilborn, West China University, Chengtu, West China, to whom the Museum is deeply indebted for securing these rare and interesting animals.

The Takin (*Budorcas bedfordi*), an inhabitant of China and Tibet, is a goat-like antelope. It is one of the rarest of animals and is regarded as sacred by the natives, and hence is extremely difficult to secure. It inhabits the thick woods of the mountainous areas, usually being found at about 8,000 feet altitude.

The Giant Panda (*Aeluropus melanoleucus*), is another rare animal of which little is known. Its general appearance is that of a black and white bear but it also has certain affinities with the raccoons and is usually regarded as representing a distinct family, Aeluropidae. It is structurally a carnivorous animal but feeds on the stalks and shoots of bamboo. It is strikingly marked with black and white. The general colour is white but with black ears, black rings around the eyes, black limbs and transverse black bar from shoulders to fore limbs.

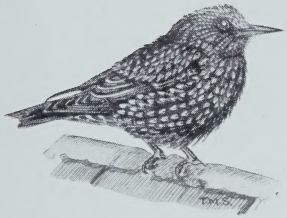
ACCESSIONS

Accessions to the museum for the six months' period, May 1 to Oct. 31, 1935, were as follows:—

	Donated	Collected	By exchange	Purchased	Total
Mammals	452	290	10	196	948
Mammal heads and horns	21				21
Birds	478	167	7	328	980
Bird nests	25	44			69
Bird eggs	153	110			263
Reptiles	46	3			49
Amphibians	63	35	10		108
Fishes*	240	61		9	310
Molluscs	350	4970			5320
Insects	2098	152			2250
Miscellaneous invertebrates	178	419		262	859

* The total number of specimens of fish was far in excess of the number indicated since in the case of small fishes, a lot consisting of representatives of a single species, if taken in the same locality at the same time, is counted as one, even though it may consist of a hundred or more specimens.

THE STARLING IN ONTARIO



WINTER PLUMAGE

SUMMER PLUMAGE

The starling, which is now so abundant in southern Ontario, is not native to North America, but was introduced from Europe in 1890 and 1891. On March 6, 1890, eighty starlings were liberated in Central Park, New York City, and on April 25, 1891, forty more were released at the same place. From these 120 birds originated all of the millions of European starlings now found throughout eastern North America. For six years these starlings and their progeny remained about the point of introduction. Gradually, however, they spread farther and farther from New York and in 1919, twenty-nine years after its liberation in New York, the starling reached Ontario. The first starling was seen in Ontario in July, 1919, five miles west of Brockville. During the following winter (1919-20), it was observed at St. Catharines and in the summer of 1920 at Toronto. Their dissemination over a wide range in Canada has progressed rapidly, so that at the present time they are a numerous and important element of the bird fauna of the southern parts of the Maritime provinces, southern Quebec and southern Ontario. Starlings are now apparently permanently established as far northwest as Port Arthur, Ontario, and birds have been seen as far north as Moosonee and York Factory. Occasional records from Manitoba and a single report from as far west as Alberta seem to presage the general occupation of suitable territory throughout the more southerly portions of the Dominion.

The native home of the common starling (*Sturnus vulgaris*) is the temperate region of Europe and corresponding latitudes in western Siberia. In the old world, the starling is migratory, most of its population travelling south in autumn to the countries bordering the Mediterranean and eastward as far as India. From its native range this species has been successfully introduced into Australia, Tasmania, New Zealand, and South Africa as well as North America.

The starling is a bird of cultivated areas, apparently equally at home about cities, towns or farms. Although it is sometimes seen in wilderness areas, it is never common in such places. Starlings frequently select their nesting territory as early as March and their first nesting occurs, as a rule, in April. Most pairs probably nest twice in the year. The eggs are pale blue and usually four to six in number. The young are cared for in the nest until they are nearly full grown. Young starlings, just out of the nest, wear a rather uniform grey-brown plumage.

Starlings feed on a wide variety of food materials. Both animal and vegetable matter is taken, the proportions varying according to availability which in turn is dependent on the season. In spring and summer, a large proportion of their food consists of insects, both adults and larvae. Cultivated fruits are taken in season, particularly the smaller kinds. In autumn, plant foods bulk large, including rose hips, wild cherries, wild grapes, elderberries and sumac seeds. In winter, they forage about habitations; in cities they resort to garbage dumps, where a great variety of animal and vegetable refuse is consumed.

In late summer, when the last broods of young can look after themselves, family groups congregate into flocks which in turn merge into still larger flocks for roosting. The size of these roosting flocks increases as autumn approaches, finally attaining prodigious proportions, greater than those of any native bird. They are joined, however, by certain native species such as cowbirds, grackles and robins. These large flocks resort for roosting to such widely different situations as small groves in the country, shade trees or wooded plots in cities, or to the ledges and architectural irregularities on the faces of city buildings. These flocks may be seen coming into their roosting places in the early evening. Their settling down for the night is accompanied by considerable shifting about and chattering, which may continue throughout the night. In the early morning, they fly to their outlying feeding grounds. Birds from city roosts travel to country districts, covering many square miles of territory. The fall roosts usually break up in early October. Many of the birds migrate southward to return

in the spring but a plentiful population remains throughout the winter along the southern border of Canada.

The song of the starling is a more or less extended and continuous series of chatters and squeaks, but one usually hears a variety of notes, phrases and songs of other birds interspersed with its native repertoire. Among North American birds whose songs the starling imitates exceedingly well are the bluebird, killdeer, wood pewee and meadowlark, but thirty or more species are imitated more or less successfully.

Whatever attitude we may adopt towards the starling as a new bird in our midst, it is certain that it adds seasonal interest to our environment. During March, before most of our native birds have returned, the starling fills in the bird calendar with its song and other prenuptial activities.

One of the most characteristic attributes of the starling is its wariness. Although it prefers the proximity of man, it avoids complete familiarity with him, suspicion and alertness characterizing its every movement. Even where they are invited to accept food and nesting boxes about dwellings, their circumspect manners are never completely overcome.

The starling is a serious competitor of many of our native birds. This competition does not usually take the form of direct struggle, although occasionally they do dispute with other species for particular nesting sites. Since the starling selects its territory early, several native species which habitually occupy situations identical to those selected by starlings are, in effect, crowded out by this newcomer. Birds which nest in cavities and crevices suffer most severely. Such species include bluebirds, flickers, crested flycatchers, house wrens, tree swallows, martins, nuthatches, chickadees, screech owls, sparrow hawks and downy woodpeckers. The starling is also a competitor of many native birds in the matter of food. The seeds and fruits of many trees and plants are consumed by the fall and winter population of starlings. This food would formerly have served as food for native species.

There is increasing evidence that the starling is becoming a menace in fruit-growing districts. Small fruit crops are attacked, more particularly grapes in September, but also cherries in season. By far the most serious nuisance which has arisen as a result of the increase of this bird to date is the city starling roost. The night congregations of starlings in restricted urban areas, often in mid-summer, offer a problem to civic officials. In such places, the countless hosts of starlings soon create unsanitary conditions. The accumulation of their excreta defoliates trees, kills ground vegetation and results in a very objection-

able stench over extensive districts. The effect is not only unwholesome but unpleasant in appearance. Buildings where roosts are established are defaced in an unsightly manner. In addition, the noise from these roosts during the evening and often throughout the night is a serious disturbance to residential sections of a city.

Control

It is impossible now to exterminate the starling in North America although some reduction of numbers could undoubtedly be brought about by the continuous use of some efficient large-scale trap during the flocking season. Efforts to reduce the population in particular sections, unless continued year after year, will merely offer opportunities for birds from neighbouring areas to move into territories where competition would be less keen. It is highly improbable that every community in the province could be induced to wage a continuous war on starlings. Any effort short of this will give only partial and temporary relief.

Only time will tell whether starlings will continue to increase in southern Ontario although the number of resident birds must be nearing the maximum that can find a living in that part of the province. Their numbers may also fluctuate to some extent from year to year and it is even possible that they may ultimately come to be less numerous than they are at present. This depends entirely on the action of natural forces destructive to them. The chief forces which tend to keep all kinds of birds and other animals from expanding their numbers are the absence of sufficient food of the particular kind they require and the prevalence of diseases and enemies. It is probable that the starlings introduced from Europe did not bring diseases with them. Whether diseases will develop and spread among them as a result of the crowding effect of their immense numbers remains to be seen.
to the starling flocks as a convenient food supply. These bird-eating hawks take the prey which they can catch most easily, and when starlings are more abundant than other birds more of these are eaten than of other species. Of 40 Cooper's hawks killed in 1931 and 1932, 17 had eaten starlings, 8 English sparrows, 4 song birds, 3 grackles, 2 domestic pigeons and 1 game birds. (The crops of some were empty when killed.) On account of the prejudice which exists against all kinds of hawks and owls, it is unlikely that these natural agencies of control will be allowed to exercise their natural influence on starling numbers.—L. L. S.

ERRATA

Page 6: Last Para.—First two lines should read:

The natural enemies of starlings are the bird-eating hawks. In this country, Cooper's hawk and the sharp-shinned hawk are known to turn

Page 8: Second Para.—Second line should read:

Hotel on Monday, Oct. 21. Mr. A. C. Bent, of Taunton, Massachusetts,

SUMMER FIELD WORK

Professor J. R. Dymond spent July and August in Algonquin Park, under the auspices of the Department of Biology, investigating the game fish situation in some of the Park lakes. Much information was secured on the distribution of fish in that area, which presents a very puzzling problem in animal distribution. The problem is probably complicated by the geological history of the area. It is hoped to give further study to this section of the province, both because of its practical and theoretical interest.

Mr. L. L. Snyder, Curator of the Division of Birds, assisted by Messrs. T. M. Shortt and C. E. Hope, visited a number of points in Ontario during the past summer, in an effort to round out our knowledge of the distribution of certain species of birds in central Ontario. By motor the party travelled from Toronto to the south end of Lake Huron, then along the lake shore to the vicinity of Southampton, thence skirting the southern edge of the Laurentian shield by way of Owen Sound, Orillia, Haliburton, thence to Pembroke, Mattawa and return to Toronto. This survey gave information, supported by specimens, on the bird life in important areas of Ontario for which observations had previously been quite inadequate.

Mr. J. L. Baillie visited the National Museum of Canada during the summer for the purpose of securing records of Ontario species included in the National collection of birds.

The past season saw a good deal of activity in the study of small mammals. Mr. E. C. Cross, assisted by L. A. Prince, collected at Glen Major, Bruce County, Penetanguishene and Algonquin Park. Professor A. F. Coventry of the Department of Biology, University of Toronto, in connection with his population studies of small mammals, collected many specimens in Temagami and Algonquin Park. Professor Dymond also collected in Algonquin Park and Mr. Snyder and his party collected some mammals on their bird survey.

Mr. J. G. Oughton attended the Convention of the American Malacological Union at Buffalo at the end of June, and then visited museums in Buffalo, Boston, New York, Pittsburgh and Ann Arbor, looking especially into their methods of handling mollusc collections.

Thirty-two hundred specimens of molluscs were collected for the Museum by Dr. E. M. Walker and Mr. Oughton during the past summer at several points in the Ontario drainage area of Lake St. Clair and Lake Huron.

AMERICAN ORNITHOLOGISTS' UNION MEETS IN THE MUSEUM

On the invitation of the Trustees of the Royal Ontario Museum, the fifty-third stated meeting of the American Ornithologists' Union was held in Toronto from Oct. 21 to 24, 1935. This was the first meeting of this Society in Toronto and the third in Canada.

The business sessions of the Union were held in the Royal York was elected President succeeding Mr. J. H. Fleming, Honorary Curator of the Division of Birds of the Royal Ontario Museum of Zoology. Mr. Fleming's retirement from the Presidency closed a period of three years' service to the Union in that capacity. Mr. J. L. Baillie of the Division of Birds, Royal Ontario Museum of Zoology, was elected a full Member of the Union.

The reading of papers, which is one of the principal features of the Union's annual meetings, took place on the 22nd, 23rd and 24th. All of these sessions were held in the Royal Ontario Museum. Sixty-seven titles appeared on the programme. Three were presented by members of the Museum's staff as follows:

Ontario and its Avifauna. L. L. Snyder.

The Bird Collection in the Royal Ontario Museum of Zoology. J. L. Baillie.

The Standing of Cory's Least Bittern. J. H. Fleming.

The programme of papers was one of the largest ever submitted to an A. O. U. meeting and covered a wide range of ornithological subjects. It is interesting to note that nearly one quarter of the general papers, those least purely technical, were illustrated by moving pictures.

PUBLICATION OF "THE PASSENGER PIGEON IN ONTARIO"

"The Passenger Pigeon in Ontario", by Margaret H. Mitchell, was published in October, as Contribution No. 7 of the Royal Ontario Museum of Zoology. This publication brings together all that is known about this bird, so far as Ontario is concerned. It has been compiled from statements secured by the Museum from those who knew the pigeon when it was still comparatively abundant and from scattered descriptions and reminiscences in publications of various kinds. The book should appeal not only to naturalists but also to those interested in the early history of the province. It is on sale at the Museum. Price $1.00 in paper and $1.50 in cloth.